Effective Health Care

Cytochrome P450 Genotyping Tests and Antidepressants Nomination Summary Document

Results of Topic Selection Process & Next Steps

- The topic, *Cytochrome P450 Genotyping Tests and Antidepressants*, is not feasible for a full systematic review due to the limited data available for a review at this time.
- Cytochrome P450 Genotyping Tests and Antidepressants could potentially be considered for new research in comparative effectiveness.

Topic Description

Nominator(s): Individual

Nomination Summary: The nominator is interested in the utility of cytochrome P450 (CYP450) genotyping tests in clinical practice to achieve control of depression in patients with chronic treatment-resistant, or refractory, depression.

Staff-Generated PICO
Population(s): Adults diagnosed with major depressive disorder (MDD) includingwho have been treated with 2 or more antidepressants without significant improvement (i.e., chronic resistant MDD)
Intervention(s): Available antidepressants including selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), bupropion, tricyclics, and monoamine oxidase inhibitors (MAOIs) selected using CYP450 genotyping
Comparator(s): Available antidepressants including SSRIs, SNRIs, bupropion, tricyclics, and MAOIs selected without CYP450 genotyping; usual care (i.e., stepped care)
Outcome(s): Improvement in symptoms of depressive episodes; prevention of recurrent depressive episodes; reduced suicide risk; improved treatment adherence, improved social and occupational functioning; improved health-related quality of life; prevention of adverse drug reactions

Key Questions from Nominator: Do genotyping CYP450 tests accurately assess individuals' metabolic processing of various antidepressants? Are genotyping CYP450 tests effective in predicting the appropriate antidepressants for resistant chronic depression?

Considerations

- The topic meets Effective Health Care (EHC) Program appropriateness and importance criteria. (For more information, see http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/.)
- Major depressive disorder (MDD) has a lifetime prevalence rate of 16% among adults in the US and negatively impacts social functioning and physical health. MDD is associated with reduced adherence to medical treatment, reduced participation in preventive activities, and increased likelihood of being obese, a smoker, and living a sedentary lifestyle.
- While many antidepressants are available for treating MDD, finding the right antidepressant that treats depressive symptoms and has tolerable side effects can be difficult . The CYP450 family of enzymes is involved in the metabolism of many drugs, including antidepressants. The use of CYP450 genotyping tests has been proposed as one method for informing the identification of antidepressants that are likely to be better metabolized by a patient and therefore be more effective and safe for that patient potentially leading to better outcomes.
- A few systematic reviews relevant to testing for cytochrome P450 polymorphisms in adults with non-psychotic depression were identified in the literature; however, they do not appear to focus on the outcomes associated with these tests and instead call for guidelines for the use of these tests in clinical practice. The available evidence that has been published since these reviews is limited and does not sufficiently address the topic.